IS LOW BIRTH WEIGHT RELATED TO PESTICIDES EXPOSURE IN BRAZIL?

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Background and Aims: Brazil has been one of the biggest global pesticides consumer, and exposure to these substances can affect fetal growth and pregnancy outcomes. The objective is to estimate the correlation of pesticides per capita sales in 1996 with prevalence of low birth weight from 1996 to 1998, among Brazilian micro-regions.
Methodology: This was an ecological study that employed secondary data, aggregated at the micro-regions level (defined by the Brazilian Institute of Geography and Statistics – IBGE). The prevalence of low birth weight in 1996, 1997 and 1998 was obtained from the National Databank System (DATASUS). The per capita pesticides sale in 1996 was analyzed as an indirect measure of population exposure to these chemicals. We estimated the degree of Spearman correlation for the total population, and Prevalence Ratio by quartile of consumption, correlating pesticides exposure and the prevalence of low birth weight.
Results: A total of 452 non urban and 106 urban micro regions clusters was analyzed. Pesticides per-capita consumption in non-urban microregions was directly associated with greater prevalence of children born with low birth weight ($r = 0.403$; $p < 0.001$), with birth weight between 1500 and 2500 grams ($r = 0.366$; $p < 0.001$) and with very low birth weight at birth ($r = 0.476$; $p < 0.001$). In urban areas there was no significant correlation . There was a gradual, and statistically significant, increase in the prevalence ratio of low birth weight as the quartiles of pesticides consumption increases.
Conclusions: The pesticides per capita consumption may affect the prevalence of low birth weight among the non-urban microregions of Brazil, indicating the need to strengthen policies and actions for protecting the health of populations exposed to pesticides, as well as review its use of these substances.